Fact Sheet
Physical activity and diabetes

What is diabetes?

There are two main types of diabetes, Type 1 and Type 2. Type 1 diabetes is the most common form of diabetes diagnosed in children and adolescents and is caused because the pancreas is no longer able to make any insulin. Insulin is a hormone that is necessary to allow glucose to be used by the body for energy. Type 1 diabetes is treated with insulin injections. Type 2 diabetes is far less common in children and adolescents and is caused by the body not being able to make enough insulin and the insulin does not work properly which is known as insulin resistance. Type 2 diabetes may be treated with oral medication, diet and exercise.

Symptoms of undiagnosed diabetes include; excessive thirst, excessive urination, weight loss, and dehydration.

Why should children with diabetes be active?

All children, including those who have diabetes should be encouraged to be active. The benefits of regular physical activity are now well known. It assists in weight control and promotes healthy growth and development. Children need at least 60 mins (and up to 2 hrs) of moderate to vigorous physical activity every day (The Australian National Children's Nutrition and Physical Activity Survey, 2007). Limiting screen time (TV, internet and computer games) to no more than 2 hrs per day and increasing incidental exercise such as walking to school are simple ways of increasing your child's activity. In addition to this children should be given opportunities to participate in a variety of activities such as team sports, swimming, bike riding, and bush walking. Use weekends as an opportunity for the family to do something active together.

Can exercise affect blood glucose levels (BGL)?

In general, exercise lowers the BGL because the muscles use more glucose and injected insulin works better. The BGL's can rise as a result of exercise and this is due to counter regulatory hormones eg. adrenaline. However if blood glucose levels are high (greater than 15 mmol/l) and your child feels unwell, vigorous exercise should be avoided. Extra insulin may be needed. Speak to your diabetes team for sick day advice.

Hypoglycaemia- HYPO'S

Exercise can cause a low BGL during and/or after physical activity.

A BGL less than 4 mmol is known as a 'hypo' or hypoglycaemia.

A child having a 'hypo' may appear pale, shaky, weak, uncoordinated, lethargic, or irritable.

If a 'hypo' occurs and your child is able to swallow it should be treated immediately.

Give your child fast acting carbohydrate e.g.

- 7 jelly beans or
- 125ml popper (100% juice)
- ½ can soft drink (not diet).

Recheck the BGL in 10-15 mins & if it is not over 4mmol or the child still feels low, then retreat with fast acting carbohydrate.

If the child is going to continue to be active this should be followed with additional long acting carbohydrate eg.

- one slice of bread
- two plain sweet biscuits
- one apple or one banana
- 250 ml (1 cup) milk.

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Do not leave a child having a 'hypo' on their own.

DO NOT DELAY TREATMENT, as doing so will put your child at risk of severe hypoglycaemia.

To reduce the risk of hypoglycaemia talk to your diabetes team about managing exercise. They will help develop an individualized plan, which includes recommendations for adjusting your child's insulin and carbohydrates when exercising and checking BGL's more frequently.

In general before participating in physical activity your child should:

- Measure the blood glucose level which should be above 7mmol/L.
- Eat carbohydrates and/or reduce insulin.
- Always have a supply of foods suitable for treating hypos (eg. juice and biscuits).

Foods to eat before being active

Many carbohydrate foods are suitable to eat before activity and provide extra glucose for energy. Some examples include:

- juice (100% fruit juice)
- yoghurt
- fruit
- biscuits
- milk
- cereal
- fruit/muesli bar
- fun-size chocolate bar.

Remember

- **Physical activity should be encouraged in all children, including those with diabetes.**
- **Children with diabetes undertaking any exercise should be supervised for hypoglycaemia.**
- **Eating carbohydrates before exercise or reducing insulin pre and/or post activity can reduce the risk of hypoglycaemia.**
- **If a hypo occurs treat the hypo immediately with fast acting carbohydrate.**

Reference:

Clinical Practice Guidelines:Type1 Diabetes in Children and Adolescents (2005) nhmrc.gov.au/publications

Department of Health and Aging (2008) 2007 Australian National Children's Nutrition and Physical Activity Survey, Canberra